lifting the thigh and leg off the bed with both her hands. She says that when she is up resting on the sound limb, the affected leg and thigh turn uniformly of a very dark, or in her language, black colour.

A gentleman reading medicine with me, communicated last winter a specimen of morbid anatomy he had met with, analogous to the preceding case. The bottom of the socket had wasted by ulceration sufficiently to permit the ball of the femur and neck of the bone to pass up into the pelvis, the great trochanter jutting against the brim of the acetabulum. The head of the femur was considerably reduced in size, and a species of ligamentous connexion bound the neck and trochanter to the sides and edge of the socket.

Baltimore, July, 1828.

Art. IV. *Case of Axillary Aneurism removed by the application of a Ligature to the Subclavian Artery.* By Dr. Edward W. Wells, Physician and Surgeon in Maracaybo. Communicated by Felix Pascalis, M. D. of New York.

I AM emboldened to offer the following case to the public from a conviction that the detail of every successful surgical operation of magnitude is interesting, as throwing additional light on practical points of importance, and strengthening facts which have been made the foundation of useful rules. The successful termination of the present case may tend to corroborate four maxims advanced by distinguished surgeons, and which were borne in mind during the operation.

1st. That in cases of axillary aneurism the operation ought not to be deferred till the tumour acquire such a size as to elevate the clavicle considerably.

2d. That the best ligature is that which is the smallest, compatible with a degree of strength necessary for constricting the artery firmly.

3d. That it is of the utmost importance to maintain the limb in as absolute a state of rest as is enjoined in cases of fractured bone.

4th. That the age of sixty years is not a reason for declining the performance of the operation, provided there be nothing otherwise unfavourable in the constitution, circumstances, or situation of the patient.

It is useful in the early stages of the disease, to apply moderate pressure in such a manner as to operate only upon the tumour, without compressing the adjacent and surrounding parts, which in the present case was easily effected by the means employed, with no other inconvenience than a slight degree of numbness and œdema in the fingers, the necessary consequence of the pressure affecting the subclavian vein, and some of the nerves in the vicinity of the artery. That in the present case this compression had the effect of promoting the enlargement of the anastomosing vessels, may I think be inferred, from the fact of the circulation in the arterial ramifications of the limb being apparently so little affected by the ligature of the artery, as manifested by the absence of that increased temperature of the part after the operation, which is usually considered indicative of the augmented action in the suddenly dilated branches. I would not, however, by any means delay the operation, when the tumour should have increased so as to elevate the clavicle to the degree which occurred in the case under consideration, as it is this position of the bone that forms the only difficulty in applying the ligature to the artery. It may be further remarked that so much relief from pain was afforded by the pressure, that on my ordering the patient to leave it off for a short time, on account of the swelling of the fingers, he begged to be allowed to continue it, as the slight inconvenience of the tumefaction was more than counterbalanced by the comfort which the compression afforded.

In performing this operation, I was struck with the importance of taking time in operating among parts of which a rough handling or imprudent injury might have been attended with dangerous, not to say fatal consequences; and I preferred retaining the patient longer on the table, which scarcely augmented his suffering, to risking his safety by precipitation.

It cannot be doubted that the less the parts are separated, and the smaller is the extent of the wound, the more probability there is of reunion by the first intention. For this reason the practice appears reprehensible which some writers recommend, of making two incisions meeting at an angle, and of dividing the omo-hyoideus, and cutting the anterior scalenus muscle. That portion of the artery which it is necessary to expose for the purpose of applying the ligature, may easily be reached by one incision of less than three inches in extent, and any further division of parts can be attended with no useful purpose, and augments the subsequent danger of suppuration, hæmorrhage, &c.

The following is the mode of operating that I would employ in ordinary cases:—

The patient should be laid with the affected shoulder *projecting a little over the edge of the table*, the arm drawn down as much as possible, and the elbow backwards, and steadily retained in that position by a good assistant, by which means the artery will be placed in the most favourable relative position, the platysma myoides will be put upon the stretch, and the dissection materially facilitated. Then let an incision be made through the integuments, beginning immediately over the acromial edge of the clavicular origin of the sterno-cleido-mastoid muscle, and a little more than half an inch above the clavicle, and continued for about two inches and a half in length towards the shoulder and terminating about a quarter of an inch above the clavicle. Next let the platysma myoides be divided *carefully*, in order not to touch the veins, which ought not to be cut if they do not prove a considerable impediment to passing the needle under the artery, as their division would render necessary additional ligatures, a source of irritation which of course it is expedient to avoid. If, however, the jugular vein be so situated as to prove a great source of difficulty, let it be included in two ligatures, composed each of a single thread of silk, and divided in the interspace. For the reasons just mentioned, the hæmorrhage from the small vessels of the skin should rather be suppressed by compression with the finger, and the dissection of the cellular substance conducted slowly, and as far as possible with the handle of the scalpel in preference to the edge. By this cautious mode of proceeding several small arteries may often be avoided, the bleeding from which might prove troublesome by obscuring the parts, and perhaps render it necessary to apply ligatures. There would also be less danger of dividing any nerve of magnitude, an accident which might possibly be attended with inconvenience. The ligature which I would prefer is a strong silk sewing thread, doubled and twisted and waxed, so as to render the knot less liable to loosen. In operating in the following case some variation from the above method was made, but the most important circumstances pointed out above were attended to; and perhaps without falling into the error of *post hoc, ergo propter hoc*, its success may be considered some argument in its favour.

Case.—Hermenegildo Gonzales, aged sixty-one years, of small stature, spare habit, and quiet, patient disposition, one of the poorer class of farmers, residing a few miles from the city of Maracaybo, began in the month of October last to feel pain in the course of the scaleni muscles of the right side, which he could not assign to any evident cause, unless it might have been occasioned by violent exercise on horseback. The pain was much augmented on moving the arm, and shortly after its appearance a tumour became visible in the axilla, which, when he applied to me in the month of November, was an evident axillary aneurism. The tumour pulsated strongly in the axilla and under the clavicle, and was of about the dimensions of a small orange. The brachial artery was also enlarged to about the size of the little finger for about an inch or more in extent, and about three inches below the axilla. The pulse and temperature of both arms were equal. Considerable pain was felt when the arm was perfectly at rest, and it was much increased by the least exercise. The patient is the father of three healthy children, has always enjoyed good health, and was not labouring at the time he applied to me under any disorder except the tumour, and did not experience pain or inconvenience in any other part of his body. Owing to his spare habit of body, the subclavian artery was unusually distinct to the feel in both shoulders, and by moderate pressure on that of the affected side, the pulse in the aneurism, as well as at the wrist, was suppressed.

Having always the operation in view, I explained to the patient the nature of his situation, and as a preparatory measure, and with the object before mentioned, advised pressure to be made to the dilated portion of the artery by means of balls of soft leather stuffed with moss, to be applied in the axilla, and to the tumour under the clavicle, and retained in their position by a bandage.

April 8th.—The tumour was considerably increased in size, and more painful. The application of the balls afforded relief to the pain, but occasioned a slight degree of numbness and œdema in the fingers. The temperature and pulse were the same in both arms. The superficial veins in the neighbourhood of the aneurism were enlarged, apparently from the pressure of the tumour on the subclavian vein. When both scapulæ were lowered as much as possible by drawing down the arms, the acromial end of the right clavicle was about an inch higher than its fellow. A considerable portion of the pectoral muscles was protruded by the tumour, which at the upper part, immediately under the clavicle, was nearly of a *hemispherical* figure, and measured three inches in diameter. That in the axilla was considerably smaller.

April 12th.—At eight o'clock, A. M. I proceeded to the operation, assisted by Dr. John Irwin, Surgeon Major in the Colombian army, charged with the care of the military hospitals of this place, and Mr. David T. Lanman, formerly of New York. The temperature of the right hand 94°, left hand 95°, pulse 86, and equal in both radial arteries. The patient was laid on the table with the affected shoulder projecting a little over the edge. As the skin was very lax, I apprehended that it would be difficult to divide it immediately over the place where I intended to dissect down to the artery; I therefore ordered the shoulder to be elevated, and drawing down the relaxed integuments, made my incision immediately upon the clavicle, beginning it over the acromial edge of the clavicular origin of the sterno-cleido mastoid muscle, and continuing it along the bone for less than three inches in extent. I then, without altering the position of the shoulder, cut carefully through the platysma myoides, which was unusually thin and delicate, but as the incision was made upon the bone, I ran no risk of wounding the jugular vein, which crossed the line of the incision diagonally, and nearly in the middle, as soon as the shoulder was depressed, in order to continue the dissection down to the artery. The arm and scapula being drawn down as much as possible by the assistants, I dissected cautiously, sometimes using the handle, sometimes the edge of the scalpel, until I laid bare the artery where it emerges from the anterior scalenus muscle. This dissection was tedious and somewhat difficult, the subclavian vein being large, and so elevated by the tumour as to cover the situation of the artery. A considerable nervous branch lay above and somewhat behind the artery, and another rather smaller, crossed it obliquely just as it left the scalenus. The artery was large but apparently healthy. The situation of the jugular vein was found to impede the dissection so materially that it was included with two ligatures composed each of a single thread of sewing-silk, and divided between them. The hæmorrhage from the small vessels required no ligature, and not more than an ounce of blood was lost. The artery being laid bare, I made a slight incision with the cutting spatula through the cellular sheath on each side of the vessel, and passed under it Dr. Parrish's needle, armed with a small ligature composed of two fine strong silk sewing threads twisted together and waxed. In this part of the operation, no little difficulty was experienced from the deep situation of the artery, although aided by the above excellent needle; and I am convinced that without a contrivance of the kind it would have been absolutely impossible to pass the ligature. The thread being under the artery, the assistants, as well as myself, examined the vessel, and remained satisfied that it alone was included in the ligature. I then tied it firmly, in doing which the patient experienced little or no pain. One end of the thread was cut off close to the artery. The pulsation immediately ceased in the whole arm, and the tumour under the clavicle shrunk considerably. The wound was dressed with adhesive strips, and the ligatures disposed of in the usual way. Fifteen minutes after the patient was placed in the bed, the temperature of both arms was the same as before the operation. The pulse in the left radial artery was 88, full, and regular. He complained of no particular uneasiness, except a very slight numbness in the fingers of the right hand. Ordered him to confine his diet to broth and arrowroot, and enjoined the strictest attention to remaining perfectly at rest, and not to rise from his bed on any account.

Twelve o'clock, pulse 84, full, and regular; temperature of the right hand 99°, left hand 100°. He says he has experienced slight pain in the wound and arm, but that it is better. His countenance is cheerful. Seven o'clock, P. M. pulse 76, and regular; temperature of the affected side 97°, left side 98°; some pain in the hand and arm.

13*th.*—Twelve o'clock, pulse 83; temperature of both arms 99°; pain in the arm relieved; numbness slight.

14*th.*—Twelve o'clock, pulse 80, and somewhat weaker and irregular; temperature of both arms 96°. He complains of numbness in the arm. Ordered a more nourishing diet, and as the bowels are somewhat confined, laxative enemata.

15*th.*—Nine o'clock, A. M. pulse 80, and regular; temperature of both arms 96°; numbness diminished. He complains of pain in the stomach; bowels not opened by the enemata. Ordered syrup rhei ℥j. —pulv. rhei ℈j. M.

16*th.*—Nine o'clock, A. M. Medicine produced a copious evacuation; pain in the stomach was removed. I dressed the wound, which appeared to be nearly united, and gave no pain; pulse 86; temperature of both arms 96°. The superficial veins are much diminished in size.

17*th.*—Nine o'clock, pulse 80; temperature of both arms 96°; wound nearly all united, and looks well. The tumour is very hard, and neither it nor the wound gives any pain. He complains of occasional slight pain in the arm; the bowels have not been opened; repeat the medicine.

On the 30th, the upper ligature of the jugular vein came away, and the next day the other ligature of the same vessel, and on the 3d of June, that of the artery. A small sinus remained in the course of the ligatures which was cured by injections of sulphate of zinc, and of solutions of nitrate of silver; and on the 14th of June was perfectly healed. The pain and numbness had entirely left the arm, which was every day regaining its motion. The tumour under the clavicle had almost disappeared, and that in the axilla was reduced to the size of a walnut, and very hard. The patient called to see me previously to returning to the country to pursue his usual avocations, overwhelming me with a profusion of grateful expressions; and I had the happiness of feeling that as an humble agent, I had been the means of successfully employing one of the triumphant expedients of modern surgery, to save an unfortunate fellow-creature from the jaws of the grave, to restore a husband to his despairing wife, and a father to his afflicted children. My gratification will be increased, should the detail of this case, by adding something to the book of experience, aid in promoting similar results.

Maracaybo, June 23d, 1828.

ART. V. *On the Topography and Diseases of Western Pennsylvania.* By L. CALLAGHAN, Member of the Faculty of Medicine, and Licentiate of the Faculty of Physicians and Surgeons of Glasgow.

WESTERN Pennsylvania stretches from 39° 40′ to 42° 20′ north latitude, and from 78° to 81° west longitude. It is bounded by the Alleghany mountains on the east, by the state of Ohio on the west, by that of Virginia on the south, and New York on the north, having that great inland sea, Lake Erie, on its north-western boundary. This portion of Pennsylvania may in geographical language be called a table land; low water mark at the city of Pittsburg is one hundred and fifty-two feet above Lake Erie, seven hundred and twenty-seven feet above the Hudson at Albany, and seven hundred and fifty-six feet above the Atlantic ocean at Cape May; the apex of the highest ranges of hills are about twelve hundred feet above tide water level in the Chesapeake.

The entire surface of the country is made up of a succession of hills with intervening valleys, the aspect of descent lying towards the south-west. The land abounds in a rich bituminous coal and limestone; the luxuriance of the timber is the best evidence of the natural fertility of the soil; the vallies are equally remote from marsh, and the hills from sterility. The country is well watered; the Alleghany, Conemaugh, Kiskeminitas, and Monongahela are its principal rivers; the Alleghany and Monongahela uniting at the city of Pittsburg to form the majestic Ohio. In the investigation of the atmosperical temperature of western Pennsylvania, perhaps the climatic thermometer of VOLNEY is the best standard that can be used, from which four general cases will determine the difference of climate on any two given places on our globe. 1. Difference of latitude. 2. Difference of elevation. 3. Exposure to particular winds. 4. Proximity to, or remoteness from, large bodies of water.